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AUTHOR Munce, John W.
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ABSTRACT

A skills model and clustering system are presented, based on the assumptions that the tasks of all work, including scholarship, require many similar skills that can be identified and clustered. Six levels of competency are addressed: possession, combination, application, quantity, quality, and mastery. These skills can be clustered into adaptive skills, functional skills, and task-specific skills. A common vocabulary of skills and competence can be useful to experiential educators in fitting students to opportunities, in conscious skill development, and in working with faculty. At the College of Charleston, students seeking an internship must write a brief statement to describe their experiences and goals. Internship descriptions are grouped by the same clustering scheme and emphasis is given to the dominant skills required. All potential interns can undertake a 2-hour skill identification workshop to analyze their past experience for dominant skills. In addition to selecting skills they wish to develop, they choose skill words to use in interviews and writing. Appendices include: a self-rating form for specific adaptive and functional skills, a worksheet for skill identification, and a checklist to aid listening for adaptive skills. (SW)

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Occasional Papers

TOWARD A COMPREHENSIVE MODEL OF CLUSTERING SKILLS

John W. Munce
Office of Career Development
College of Charleston
Charleston, South Carolina

NSIEE Occasional Paper #1
National Society for Internships
and Experiential Education

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SUMMARY

Educators cannot seem to find common ground in their concern for education relevant to the work place. Vocational, Competency-based, Liberal Arts, Career and Experiential educators each claim a unique and supreme relevance. In response to this lack of common ground, the author proposes a model skill cluster system with six levels of excellence that utilizes current insights into the nature of skill and competency. The purpose of the model is to provide a theory and vocabulary that will assist educators, learners and employers in accomplishing their objectives.

INTRODUCTION

Two questions ultimately concern educators: "What shall we teach?" "How do we know someone has learned?" Two other questions concern employers when hiring workers: "What needs to be done?" "Can this person do it?" The primary response of educators has been to provide a systematic body of information and the cognitive skills for manipulating information. The employer's primary response has been to demand of people the ability to complete tasks. When the two groups try to discuss how to prepare people to work, the conversation frequently becomes garbled. Educators of all persuasions often feel that employers demand what cannot be provided through school and employers often feel that what educators provide is irrelevant to accomplishing the tasks at hand. As with many other conflicts, the problem seems to be a lack of common ground in their discussion. Employers tend to speak of broad basic abilities, such as mathematics, reasoning and reading, or of training for specific jobs, such as secretary, accountant, police officer. Educators tend to talk of disciplines. Confusion results because there is no easy link between disciplines and occupations. What is needed is common ground on which to stand.

In this essay I propose a model of skills as the common ground we need. A model of skills which crosses the lines between scholarly and professional work, and which relates laboring in the vineyards and factories to laboring in the libraries, can show us the common roots of both activities. My key assumptions are:

1. The tasks of all work, including scholarship, require many similar skills.

2. These skills can be identified and clustered to show the similarities of scholarly and all other work.

3. Once aware of skills and clusters, educators, students and employers can identify the requisite skills and consciously work to acquire or improve them.

The assumptions allow us to reframe the questions of employers and educators. Educators' questions become:

What skills will students learn?

How will we know they learn them?

Employers' questions become:

What skills does this task require?

Does this person have the necessary skills?

On the heels of these concerns comes a fifth:

What is excellence in applying these skills?

Employers and educators meet in the common concern for skills and in a quest for excellence of performance and product. I begin to answer these five questions by describing a method for identifying skills in any activity, whether in education or work, thus addressing the first question of both educators and employers. A system of clustering skills allows us to clearly see their commonality. A scale of excellence allows us to rate the performance of the skills and answer the final question, how well can someone perform? Finally, I describe some ways students, educators and employers can use the whole model.

WHAT IS REQUIRED TO COMPLETE A TASK?

Action is the heart of the working world. Employers want people who can take the action required to meet the economic need, whether repairing shoes, programming a computer, predicting trends or changing unhealthy behavior. Jobs are activities, that is, clusters of actions intended to produce a desired result, performed within a given context. Our use of the word "action"

may refer to a motion almost infinitesimal or international in scale. For this discussion our basic unit of action in the "task," an assigned piece of work, usually to be completed within a specified length of time. While tasks may vary from simple to complex, we shall assume that the normal task involves a half dozen or fewer easily recognizable and related activities. Examples might include a counseling session, washing a car, arresting a suspect, writing a short paper, updating a computer file, sanding a cabinet, taking a pint of blood. They are the normal units in which we assign work. Educators also use tasks as the basic unit in learning, often calling them activities. A reading assignment, a lab project, a drawing, a 1000 word book review and an hour discussion are examples of academic tasks. We normally become aware of a task by simple observation, seeing it whole. The component actions of a task only come into question when the task is new to someone, or when one cannot successfully negotiate the assignment and the person has to be taught to do the task.

Suppose we are walking through town and notice a paper carrier consistently tossing papers in front of doors without smacking the screen while riding a moped. She never misses, never falters. We murmur appreciation using words like practiced, skilled, efficient, and artful. If asked why we thought her actions admirable, we might simply point to her performance. Or we might reply by saying, "You just have to see her." Or we might offer an evaluative label: "She's a good thrower." If pressed further, we might mention snippets of the experience: "She never misses, she never pauses, she's so rhythmical, she doesn't waste motion." Or we could describe particular attributes: "She has a good eye, a good arm, good balance, coordination, or timing." In our

search for complete description we eventually reach abstractions: coordination, skills, timing, a good arm.

When we seek to teach someone what is involved in a "skilled arm" we have to analyze the experience of using one in throwing a projectile. The analysis can be simple or detailed. A child might say the paper carrier throws overhand and another child might add that the carrier throws into the wind. Or an occupational therapist may specify the nerves which activate the particular muscles required for each motion. The purpose of the analysis is not, however, to determine who has a good arm and who does not. We know that from watching people throw a newspaper from a moving moped, from seeing the results. It is when we want to teach someone to throw a newspaper accurately while riding a moped, that our analysis becomes important. We use it to build or hone the individual's abilities into the combined activity of throwing and riding. The teaching first depends on clearly identifying the parts of the action and secondly on practice. Most everyone agrees on the lable we give to the abilities identified by our analysis. We call them skills.

SKILLS

A skill can be defined as the capacity to effect or produce, the ability to use knowledge effectively in performance, a developed aptitude, or a learned power of doing something. All skills are abstractions. We only see the product of the application of skills, or the actions in which they are used, never the skills themselves. An analogy derived from physics is that skills are the potential energy which allows the kinetic energy of the actions to occur. There is evidence only of the kinetic energy, since only it changes

the perceived world. The greater the change in the physical world wrought by the action, the more obvious is the skill which caused the change. Smoothing cement is more readily observed as a skill than is listening empathetically. To complicate matters, the greater the number and diversity of situations in which a skill may be used the more abstract the skill becomes. Group process skills are widely applicable, but many people do not consider them important because they are not observable in the same way balancing an account book is observable.

One arrives at skill descriptions first by asking what must be done to an object, and secondly by asking what the actor must experience or provide in the process. Carving wood is an example of an activity analyzable by asking what must be done to the object. Developing rapport with a group of children is analyzable by asking what the agent does in a interactive process. Of course, since there is both internal and external experience in every activity, one can use both questions to fully analyze an activity. For example, psychologists attempt to describe empathetic behavior in terms of actions related to objects: sitting posture, eye contact, touching, smiles. A wood sculptor would describe the insight of knowing where to cut as important as the actual cutting. The abstract nature of skills makes all skill classifications arbitrary. In specifying skills, as in any naming process, the class of objects is delineated by the classifier.

Three Kinds. How do we find skills? Sidney Fine (19, 20) used the process called job or task analysis. Richard Bolles expanded on the technique by incorporating Bernard Haldane's (22) and John Crystal's (8) emphasis on analyzing personal experiences rather than the job. Both approaches analyze

activity. Since skills denote actions required to complete a task, if we have a description of the task, we can identify the important skills by looking for the verbs used to describe the acts. There are two kinds of generic skills for which we look, adaptive and functional.

Adaptive skills help one adapt to environments and are essentially relational. They describe the manner in which we interact with environments, which include relations to people, to organization (e.g. structure, authority), to time and space, to impulse control, to physical conditions (e.g. tolerance of noise). They are closely associated with our personality, may be called traits, and are developed over life, especially through childhood. "Getting along with people" is a great umbrella adaptive skill. Adaptive skills are necessary to become effective in any work or learning situation.

Functional skills apply to tasks. We use them to function within an environment. They are basic skills, part of our larger actions rather than ends in themselves. Functional skills, usually identified by or described by single verbs, are the most abstract skills. They are not limited to particular settings and may be called transferable. While students may increase their sophistication in computing, organizing, talking and observing, especially in different settings, the basic action remains the same. People use functional skills to solve new problems, to go beyond training and past experience. A chemist may use the same basic skills to attack theatre problems as well as chemical ones. Through functional skills people transcend time. Organizational ability may be used whether you are 5 or 55 years old, varying only in complexity, and people use it to transcend past experience.

When Adaptive and Functional skills are combined with a particular object, setting, or body of information, they are called Task Specific Skills. Bolles describes them as mastery of a vocabulary, procedure, or subject. (1, p. 147). People gain task specific skills through training or direct experience in that activity. One may develop the functional skill of moving quickly, gracefully, and precisely in basketball or fencing. Each functional skills becomes a different task specific skill when combined with specific technicques and rules. Adjusting a carburetor requires the functional skill of "using tools," which becomes specific by adding the particular tools required, such as wrench and screwdriver. (See Figure 1.)

Fine and Crystal claim the three kinds of skills form a hierarchy. Adaptive Skills are the basis for developing functional skills which in turn are the basis for developing Task Specific ones. This assumes, wrongly, that adaptive skills cannot be made into task specific ones. Conversely, it assumes that if one possesses the Task Specific Skills necessary for a job (usually meaning the technical skills) then one also has the adaptive skills. This is not borne out by employer experience; people may be technically brilliant but adaptively inept. All that can be said about the hierarchical nature of skills is that individuals usually develop adaptive skills earlier than functional. One cannot claim, either, that one develops functional before Task Specific Skills. Functional and adaptive skills never develop in the abstract; they only occur within a specific context, that is, as Task Specific Skills. One learns organizing by organizing something in particular, blocks, pictures, skits, or pieces to the Saturn V, not by going off into the corner to sit, staring blankly at the wall, organising.

FIGURE 1

SAMPLE FUNCTIONAL SKILLS

question	organize	express
observe	account	negotiable, bargain
read	catalogue	persuade
experiment	translate	teach
analyze	transcribe	report, convey information
dissect	classify	listen
synthesize	attention to detail	interview
develop hypotheses	record	write
use insight	calculate, compute	talk
see relationships	create procedures	create visual images
diagnose	separate important & unimportant	represent others
measure	compile	express ideas nonverbally
locate necessary resources	systematize	use symbols
find patterns	interpret	edit, revise
compare	summarize, simplify	describe feelings
reflect	memorize	perform
empathize	administer	image
offer support	allocate scarce resources	conceptualize
recognize needs	delegate responsibility	imagine alternatives
size-up people	meet goals	adapt, refine
develop rapport	coordinate	fantasize, dream
encourage others	select courses of action	invent
care	inspire others	formulate & use principles
establish relationships	share credit	perceive trends
raise self-esteem	enlist help	estimate needs
help others see themselves	supervise	foresee
understanding group dynamics	follow plans	visualize ideas, sketch
sensitive to feelings	find short cuts	develop programs
share	improvise	create new techniques
accept others	accept responsibility	forecast, predict
counsel, advise	make decisions	set goals
mentor, guide	set and meet deadlines	compose

SAMPLE ADAPTIVE SKILLS

adept	decisive	leadership	responsible
analytical	discreet	listener	resourceful
accurate with details	empathetic	logical	risk-taker
calm	enthusiastic	mature	humorous
caring		motivated	sensitive
competitive			
concerned	honest	open-minded	tactful
consistent	imaginative	organized	versatile
cooperative	initiative	overcoming obstacles	punctual
courageous	innovative	perceptive	reflective
creative	insightful	persistent	

SAMPLE TASK SPECIFIC SKILLS

Rebuild my VW	debit and credit accounts	type
speak French	write a program in COBOL	read German
use transactional analysis	research a land title	understand financial reports
balance my checkbook	sail	trim trees correctly
hang wallpaper	repair my own stereo	use a compass
use library reference works	run a lathe	first aid and CPR
buy and sell a house		sew my own clothes

Rather than viewing skills and skill development as hierarchical in nature it is more useful to begin with the performance of a specific task and analyze it to discover the functional skills hidden within it and the adaptive skills which allow the performance. Making a simple calculator requires not only the functional skills of analysis, design and using tools; but the adaptive skills of concentration, patience, logic, and perception. Functional and adaptive skills only appear when we analyze activity. In the paper carrier example, if the person wishes to identify functional and adaptive skills involved, she should describe the activity, cut away all but the central verbs and thus arrive at the skills in question. For the individual, the process often stops here with the identification of the functional and adaptive skills most important to her approach to the task and the task specific skills she most enjoys using. But, it is her unique combination of skills which is important. Once a person discovers the functional and adaptive skills she may ask where to apply these skills in the working world, what jobs use these skills? To understand how these skills function in the world and their use in conceptualizing jobs, the question which must be answered is, "How do the skills relate to each other?"

A SCHEME FOR ORGANIZING SKILLS

Suppose that we had a complete description of all tasks in the world and we factored from the descriptions a complete list of adaptive and functional skills used by everyone who had ever completed those tasks. What would we have other than a list of all the verbs in the largest dictionary. While there is no authorized list of skills, and at bottom there is only the compilation of all the English verbs, to be useful the list must be

organized in some way. Two fundamental ways, similarity of object and similarity of activity, are used to organize functional skills. Less work has been done on adaptive skills, which are usually handled by an undifferentiated list.

The Dictionary of Occupational Titles (DOT, 9) uses objects, People-Data-and-Things, to organize skills. Twenty-one functional skills are identified as relating specifically to one of three objects. Within each group the skills are arranged hierarchically; the higher skills, such as synthesizing, subsume lower skills such as copying and comparing. Bolles uses a variation of this scheme, grouping skills by what is used in applying the skills, for example "Using My Hands," "Using Words," "Using Leadership," and "Using Helpfulness" (1, p. 156-161). Organizing by objects makes correlations with occupations easy. Look for the jobs which involve those objects and then decide on the complexity of the tasks. (Every job has some basic requirements in all three, but most have a clear dominance of one.) This technique is useful in analyzing jobs, which is how it developed, but is not as useful with people whose experience is more complex. The hierarchy has not found much use outside the DOT.

When organizing by similarity of activity the skills are clustered by their relation to each other as operants. This is the approach most often taken by liberal arts schools and college career counselors. For example, Howard Figler uses Thinking, Human Relations, and Detective skills as organizing categories (17, 18). While they are useful to persons, the difficulty of most liberal arts cluster systems is that they do not lend themselves to the analysis of jobs or traditional disciplines. It is not

that Figler's skills are not used on the job, nor that the liberal competencies of Mars Hill College or Alverno College (14) are unimportant on the job. It is just that employers do not list those skills when describing jobs. To provide more broadly useful categories, Frank van Aalst and I (28,19,38) developed a system of clusters which allows individual preferences to become clear without forcing premature job emphasis and without using language foreign to the employer. The scheme first developed as an analysis of liberal arts to discover the skills implicit in the traditional curriculum and the skills associated with the occupations liberal arts graduates traditionally enter. By looking for the main activity in each use, six skill clusters were identified:

RI - Research and Investigation - to Question
The search for specific knowledge

IM - Information Management - to Organize
The arranging and retrieving of data and knowledge and ideas

CP - Communication and Persuasion - to Express
The exchange, transmitting, and expression of knowledge and ideas

HS - Human Service - to Empathize
Attending to physical, mental or social needs of people

OM - Organization Management - to Administer
To direct and guide a group in the completion of tasks and attaining of goals

DP - Design and Planning - to Image
Imagining the future and describing a process for creating it

These six clusters expand Fine's data and people skills to the full range of emphases people actually develop. To account for thing skills, a seventh cluster can be added:

TM - Technical and Manual - to Manipulate
The manipulation and creation of physical objects.

TM skills include the psychomotor skills in Fine's Thing-oriented skills list. Added are notions of body: coordination and grace, and the actions of tool using: sculpting, for example

Figure 2 shows a sample list of skills associated with the clusters. Any such list contains elements worth questioning (Is setting goals an organizational or planning skill? What does it mean anyway?). This list uses fairly standard, frequently occurring words, and evenly distributes them among the clusters. Few objections to the prima facie appropriateness of this grouping have been received from the 1500 students and career changers who have used the list in workshops, or from the career planning, placement, and experiential educators and academic faculty who have critiqued it at a dozen national, regional and local conferences.

The assumption in identifying functional and adaptive skills is that they are transferable. If one used a skill in one experience, then one can use it in another. The criteria usually used by individuals in identifying important personal skills is enjoyment and a personal sense of pride in the experience. In addition to knowing what skills a person possesses, educators and employers, as well as learners, need to know how well a person can apply a given skill. Is the person competent?

IN SEARCH OF EXCELLENCE

Activity unaccompanied by results is little valued in the world. Employers as well as scholars are concerned about the product or the service performed. A need spurs action and the activity, whether economic, political, creative or social, attempts to meet the need. Evaluation of the

FIGURE 2

CLUSTERS OF FUNCTIONAL SKILLS
IMPLICIT IN LIBERAL ARTS EDUCATION

RESEARCH AND INVESTIGATION

- question
- observe
- read
- experiment
- analyze
- dissect
- synthesize
- develop hypotheses
- use insight
- see relationships
- diagnose
- measure
- locate necessary resources
- find patterns
- compare
- reflect

COMMUNICATION AND PERSUASION

- express
- negotiate, bargain
- persuade
- teach
- report, convey information
- listen
- interview
- write
- talk
- create visual images
- represent others
- express ideas nonverbally
- use symbols, like mathematics
- edit, revise
- describe feelings
- perform

ORGANIZATION MANAGEMENT

- administer
- allocate scarce resources
- delegate responsibility
- meet goals
- coordinate
- select courses of action
- inspire others
- share credit
- enlist help
- supervise
- follow plans
- find short cuts
- improvise
- accept responsibility
- make decisions
- set and meet deadlines

INFORMATION MANAGEMENT

- organize
- account
- catalogue
- translate
- transcribe
- classify
- record
- calculate, compute
- create procedures
- separate important & unimportant
- compile
- systematize
- interpret
- summarize, simplify
- memorize
- attention to detail

HUMAN SERVICE

- empathize
- offer support
- recognize needs
- size-up people
- develop rapport
- encourage others
- care
- establish relationships
- raise self-esteem
- help others see themselves
- understanding group dynamics
- sensitive to feelings
- share
- accept others
- counsel, advise
- mentor, guide

DESIGN AND PLANNING

- image
- conceptualize
- imagine alternatives
- adapt, refine
- fantasize, dream
- invent
- formulate and use principles
- perceive trends
- estimate needs
- foresee
- visualize ideas, sketch
- develop programs, courses of action
- create new techniques
- forecast, predict
- set goals
- compose

results demands a notion of quality. How useful, helpful, suitable is the product or the service? Do the results meet the initial need? If so, we judge the performance competent.* The degree of competence is established by evaluating the results of the actions against an image of excellence, the perfect solution for this situation. Normally, competence is tied to a specific context; one is a competent mechanic, diplomat, quarterback, oboist. Most people in a culture implicitly agree on their expectations of suitability. But there are subtleties. Webster's Third International Dictionary identifies three usages of "competent" which highlight the application of this criterion (Olson and Freeman (30) introduced this analysis).

1. Characterized by marked or sufficient aptitude: "A competent portraitist knows how to imply a profile in the full face." (Aldous Huxley)
2. Satisfactorily or moderately able: "One way toward the competent and saleable; the other toward the excellent and possibly unsaleable." (H. S. Canby)
3. Possessed of knowledge, judgment, strength, or skill needed to perform an indicated action: "One of the finest raiders alive and most competent to judge my half-formed scheme." (T. E. Lawrence)

The first usage points to a criterion of fitness. If the portraitist cannot imply the profile in the full face, then she cannot be competent. A judgment is made on performance. Each time she paints a portrait, she

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*In this paper the words "competent" and "competence" are used to refer only to the quality of the performance of a person and not to a set or combination of skills as is the case in competency-based educational programs.

reconfirms her competence. In the third use, we infer from past performance the ability to undertake a new, unique task. By past successes one gains the competence to evaluate new ideas. Competence implies mastery. The second definition holds both a frequent vernacular use and the core of the educational use of the term. The results of the performance are acceptable, satisfactory, moderately good. The desired results are approximated without any hint of exceeding expectations. This use usually shows a comparison: "She's a competent second oboe, but hardly top flight," or "She can bake bread well enough, but I have doubts about her pastry." These three uses of competence imply an understanding of excellence in product and a scale on which one is judged. Such a scale might be set up this way:

Mastery	Sufficient	Marginal	Unacceptable
(Lawrence)	(Huxley)	(Canby)	

If you analyze an activity, then, as we saw earlier, you discover the constituent skills. If you analyze a competent performance, you discover the constituent activities and hence skills, and you discover something else -- the level or quality of the performance of the skills.

I do not believe, however, that quality performance at the highest level is reduceable to discrete parts. Inevitably, when a master is studied closely one finds little shortcuts, bits of esoteric knowledge and patterns of movements which appear to be the essence of the action, but one never completely captures her style. Many a forger has recreated Piet Mondrian's colors and grids, but experts say they can detect fakes easily since few have

his exquisite sense of balance. Through style you emphasize one aspect slightly more than another, or you compensate for a weakness by using other strengths. You substitute leverage for muscle. Style appears when the activity is considered whole. The reductionist fallacy, which grows out of the job analysis and time-study movement, is that analysis into discrete parts ignores style, which is a factor in the actor, not the job. To simply add the parts does not create a quality performance. "Competence rarely involves the mechanical application of simple cognitive or manual capacities; instead, competences are formed through the highly complex integration and application of many discrete capacities" (36, p. 38). In short, the use of analysis in the process of teaching a set of skills does not assure the synthesis of style which we associate with mastery. The juxtaposition of analysis and synthesis suggests two stages in developing competence. First is the acquisition of the basic tools. Second comes the stage of refining the basic skills. Peers judge the degree of effectiveness obtained based on the frequency of desired results and the quality of the product. These two stages allow us to refine our scale of excellence.

COMPONENTS OF COMPETENCE

Once skills are seen as the fundamental components of competence, we can add points of reference along the scale. At bottom is unacceptable performance, or incompetence. If one does not possess one or more of the required skills, then the actions cannot be performed. Or, at the second level, I may have the basic skills, all developed separately or in other areas of activity, but I cannot combine them. I may be able to run, jump, somersault and stand on my hands, but cannot form a routine. Third, through

training I may both possess the skills and use them in concert. If so, then we normally consider that person as possessing satisfactory, or minimal, competence. A well-trained person is one who is able to confront similar but new conditions with success. For example, as in a steeplechase, being able to successfully negotiate various combinations of fences and water hazards. Once I can apply my skills to similar new situations, then I am judged by how many situations I can handle, the fourth stage. The greater the quantity, the more I show an understanding of the nuances of the activity. Fifth, the more practiced I become, the better the quality of the product and my performance, I perform with precision, wasting little time, energy, motion, or material. Finally, I am considered a master when my peers acclaim me as such, when I combine quality of results with diversity of application and my peers judge worthy the elegance of my performance. These levels of competence, or excellence, are set forth in the following chart:

Levels of Competence

Mastery Levels

6 Mastery -- do peers praise your combination of quantity and quality?

5 Quality (expert) -- can you do this elegantly, without waste and with beauty and precision?

4 Quantity (journeyman) -- can you apply the skill in many situations? Do you understand and handle the nuances of the applications?

Basic Competence Levels

3 Application -- can you perform in new situations not directly met in training?

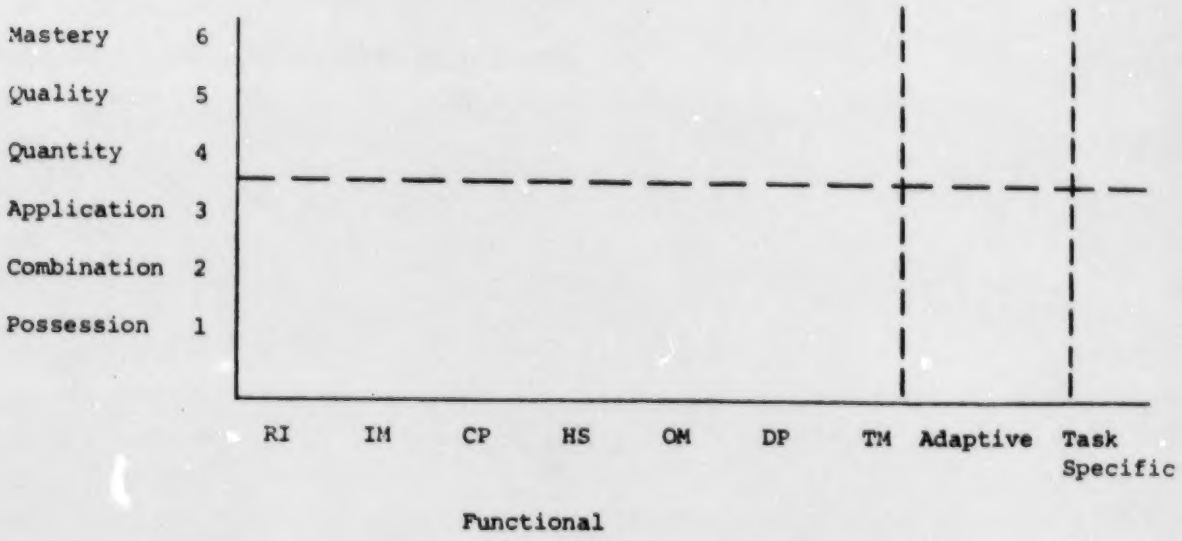
2 Combination -- can you use the skills in concert?

1 Possession -- can you perform each of the skills separately?

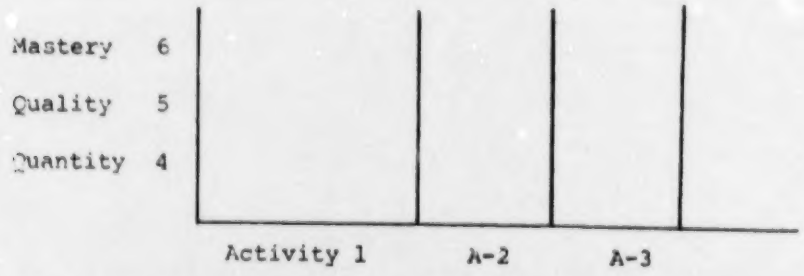
As one moves up through the levels of competency, the activities increase in subtlety and complexity. The interpenetration and integration of the skills gives the appearance of simplicity. Great control looks easy -- witness principal ballet dancers, a master blacksmith, or established writer. The skills become more and more a part of one's personality. Life/work planning as presented by Richard Bolles and John Crystal considers an awareness of the skills which are integral to the individual's personality as the key to successful career development.

A COMPREHENSIVE MODEL

If, for teaching, communicating or understanding we need to analyze an activity or an actor to discuss the relative effectiveness of performing particular skills, a visual tool which links skills and competence may help. An easy way is to form a graph using the skill cluster as one axis and the competency levels as the other.

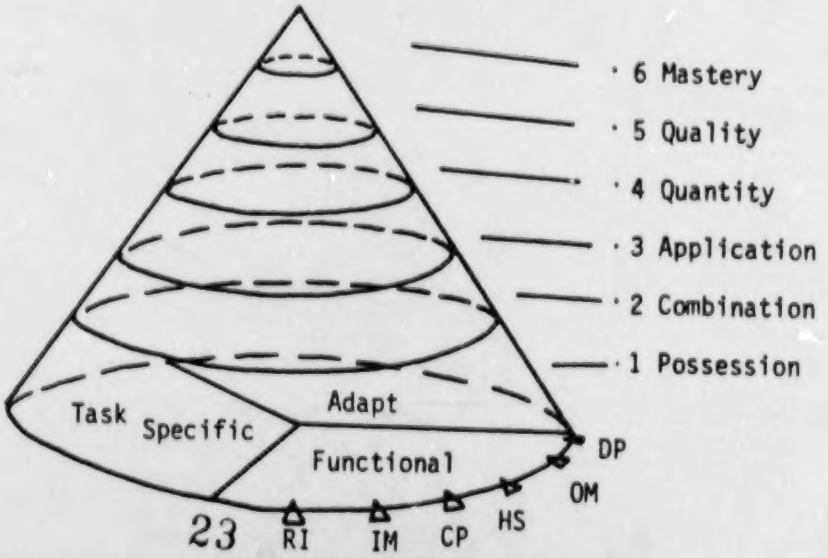


The clusters could be expanded to list individual skills. Then a person could rank herself, or be ranked, on the appropriate skills, forming the familiar line graph. This linear approach could only be useful for the first three levels; skills interpenetrate too much in the higher levels. For the top stages a graph using different activities instead of individual skills might work.



The activities could represent the different tasks of a job. In this way the more complex, judgment demanding jobs could be analyzed without leaping to skill titles too general to be useful or too specific to be manageable.

Yet even this two stage graphing does not truly represent the growing interrelatedness of skills. A more useful model would be a cone. The base consists of the skills which grow more and more united as one moves up the cone until they are blended at the peak.



The more complex the activity, the more skills at the base. Again, the top half of the cone more appropriately describes activities.

In the same way a performance can be analyzed, so can a task or a job. An employer may analyze the job first into tasks and secondly into skills. By graphing this analysis, one may compare the requirements to a potential worker's qualifications. But caution must be observed. Remembering that style, innovation and desire compensate for weak preparation, one cannot hold strictly to the results of the comparison. The analysis is far from exact. We must remember the arbitrariness of our schemes and the decisions we make to force phenomena into our categories. The main purpose of the scheme is to provide a tool for comparing our language. We need not push all concepts to quantifiable definitions to reach a clearer understanding of what employers, educators and students mean by competent performance. We may find agreement is closer than we think and merely masked by the dust raised by our search for absolute certainty.

APPLICATIONS

A common vocabulary of skills and competence becomes useful to experiential educators in fitting students to opportunities, in conscious skill development, and in working with faculty. It provides a way to understand tasks, describe personal strengths, analyze occupations and evaluate schooling. Employers appreciate skill language if it is grounded in the students' experience. Students, however, are unfamiliar with describing themselves in skills. They tend to speak too vaguely, "I'm a good planner," without giving examples which demonstrate planning. Or they describe in great detail an experience without pointing out the transferable elements, the skills. Introducing a

vocabulary of skills in the internship application helps students in their contact with employers. At the College of Charleston we require students seeking an internship to write a brief statement, similar to a resume. Their personal statements include three parts, (1) the most important experiences at school, work and volunteering, and what they learned from them; (2) why they want the off-campus experience now and what they expect to gain; (3) how the new experience will impact their career decisions and plans. On the back of the instructions sheet is a list of clustered skills. Internship descriptions are grouped by the same clustering scheme and emphasis is given to the dominant skills required. By grouping the descriptions by functional skill clusters, we can raise the question of skill development from our first contact with the student. We encourage students to consider developing new skills, to develop new combinations, or to hone current skills. We try to draw them away from simply wanting to experience a particular setting. While experiencing a particular setting is a reasonable goal, especially for a first off-campus experience, it leaves little to build on after it is achieved. A student returning from such a placement may be able to say she likes a city government office atmosphere, but the supervisor still asks, "What can she do?" Raising skill questions in the choice, application and interview stages allows us to parallel the full-time job search process, which we hope gives the students more confidence and a clearer picture of how to approach the subsequent search.

We also ask about skills in the evaluation stage. The evaluation form raises the basic question and, if the student pursues another internship, we ask them to analyze the internship learning for their new application. In seminar meetings we use their experience to teach about skills rather than

vice-versa. We ask them what skills they use every day. Then we ask which skills are most important for being successful. Inevitably, and without foreknowledge, they distinguish between Task Specific and Functional and Adaptive skills. For them the discovery of generic skills sheds new light on what they know and can do. They also begin to understand how one may quickly pick up Task Specific Skills. Not surprisingly, Adaptive and interpersonal skills are most frequently listed as crucial daily skills, as are asking questions, taking initiative and setting goals. We are then free to ask what skills they want to work on; to acquire or refine, during the rest of their work period. We encourage all potential interns to join a two-hour skill identification workshop. Through the exercises (sample worksheets in Appendix) they analyze their past experience for dominant skills and choose their most enjoyable and best. In one session they choose the skill words to use in interviews and writing, ground their skills in their experience and learn the technique of analyzing experience. They are also taught a factoring process and select skills they wish to develop. They use these newly identified skills, coupled with their top five, to choose experiences to pursue. When completing a learning contract, students describe their work tasks and their learning objectives, again using skill verbs. While the workshop, application and learning contract cannot make everyone skill experts, they do create an atmosphere in which skills are crucial to understanding work. This atmosphere begins to counteract the pervasive feeling that students don't have any skills without training in a technical area.

Faculty have responded positively to this approach. They find it more a complement than a threat to their academic territory. They can encourage

students to pay attention to skill development without undermining the value of humanities, social science, or natural science for its own sake. Skill analysis applies just as strongly to academic advising. The occupational linkage provided by the clusters of skills allows faculty to answer more confidently questions about the career relevance of their discipline. They can support the contention that English or biology or anthropology prepares one for more careers than teaching. Some have used the model to describe the dominant skills obtained through their courses; others refer concerned students to us for occupational information and related work experience. The same flexibility is useful with employers, also. Translating the employer job descriptions and the related academic studies into skills allows us to point out to employers that their needs can be met by a student in another major who possesses the skills and interest, and to point out to students and faculty that there need not be a one-to-one relation between task skills and courses offered. An English major, sociology major, or political science major could all serve as editor of a citizen participation office newsletter, though the supervisor is likely to ask for a journalism background (only they can write) or a political science background (no one else understands government). Focusing on skills permits us to see academic discipline as secondary.

An Example. The skills necessary for success in an experience-based learning situation provides an example of a use of the model. John Duley (11) identified, through a faculty survey, skills important to learning from experience, whether in a cross-cultural or a work setting. Howard Figler (15, 16) identified twenty skills necessary for a successful job hunt, which may be viewed as a ubiquitous experience based learning situation. If we take

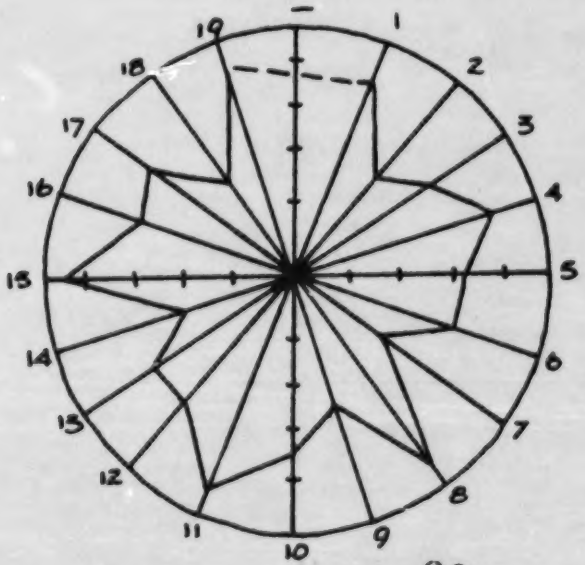
their work and translate it into the language of skill clusters then we find 19 skills important for experience learning (the list does not include items like "valuing," which I believe is an application of skills to a particular object).

Adaptive	1	Initiative
	2	Cooperative
	3	Responsible
	4	Punctual
Functional	5	Question (RI)
	6	Observe
	7	See relationships
	8	Find patterns
	9	Record (IM)
	10	Attention to detail
	11	Separate important and unimportant
	12	Report (CP)
	13	Listen
	14	Accept others (HS)
	15	Establish relationships
	16	Decide (OM)
	17	Select courses of action
	18	Imagine alternatives (DP)
	19	Set goals

To teach these skills we might simply list them with a definition and an explanation of why they are important (for survival, for completing the tasks, for learning). Then we ask the student to rank herself on a scale of effectiveness for each one (supervisors could use the same process in evaluation). We could also ask for an example of times she effectively used each skill (the same experience may supply evidence for more than one skill). This would give us an indication of where she begins. It may be that no further work need be done prior to the experience she seeks. Or she

may need to develop a skill (usually more than one). Exercises exist for work on a skill, like listening or questioning, or which provide a problem or situation requiring several skills. The workbooks of Cael (4) and John Duley (12,13), the techniques of counselor training, and internship preparatory courses such as the one in the College of Human Econogy, Cornell, provide examples of approaches to training. The cone image could be used to help mark one's progress. One might analyze the experiences of the training for evidence of skill use at different competency levels. Or one could repeat the self-rating process after the instruction. I think the more useful way is to talk with students using the grid for stages one and two, and to use the cone image as a conceptual bench mark for understanding experiences at levels four through six. Analysis becomes less than helpful once stage four is reached.

David Kolb and Ronald Fry (26) used a similar cone image to analyze skills they felt were related to the poles of their learning style scheme. They asked professionals to rank their effectiveness on a seven point scale. This creates a picture of one's relative effectiveness. The same technique could be applied here, using in this case, the 19 skills for experience learning.



This image could be a useful bench mark for the student and an easily reproducible instrument. The circle better represents the relatedness of the skills. No one will completely fill the circle. Most of us compensate for weakness in, say, goal setting by using our exceptional questioning skill to discover the goals of others so that we can adopt them. The circular grid will highlight style and may spark useful discussion and reflection.

CONCLUSION

I have presented six levels of competency, varying from possession of the required skills to mastery of the activity, and coupled them with a clustering system for skills; adaptive, functional and task specific skills. While we have used this approach to skills extensively at the College of Charleston, the model needs testing, both as a conceptual frame and a practical tool. Our objective must be to develop a scheme which attracts intellectual approval without straying far from the vernacular. I feel the basis of this model may be maintained when one drops the jargon names. Possession, Application and Mastery are simply handles for the important questions: Can you perform the required skills? Can you use these skills in situations not met in training? Do your peers praise your performance? The six levels of competency allow one to talk about effective performance with students and professionals without ever mentioning the formal hierarchy. In the same way, an understanding of skills allows one to extract adaptive and functional skills without ever calling them by name. To discover skills, ask someone to describe the crucial actions associated with a task. The seven functional skill clusters help by reminding one of the range of possible skills. By being clear in our minds about skills and competency we can smooth the conversation.

After all, the purpose is not to produce "right think" about skills and "group truth" about competency. We want to help students learn how to solve the problems of work, academics, cross-cultural, and self-development. My goal when working with students as career counselor and co-op supervisor has been to stir up their thinking about what they can do and what they want to learn to do. I've tried preaching about skills, but to little avail; students seldom remember the "big" words. But with the approach described in this paper, many students come away with an expanded way of talking about themselves and of seeing the world. Their understanding does not seem to rest on a special grasp of a system of skills, but to grow out of a sense of skills as central to effective work and learning. I use skills to give students conceptual control of their experience. On the other hand, the more confused and magical we make experience, the more dependent students become. They will need us to provide the magic insights each time they venture out. And we often may cover our own confusion by calling up magic. Clarity of our thinking, more than any particular system, is what we need. We face the challenge to practice what we preach. Do we view our own work as learning opportunities? Do we understand our actions in terms of skills? Do our programs help people increase in competency? And, at the heart of this discussion, do we argue for a special truth or a larger, collaborative one?

The values of this model are several. Educators may apply skill identification to the activities of scholarship to discuss the transferable skills students learn. They may structure programs to teach skills which employers have identified as important to the tasks of work. The programs need not be

specifically designed for each task, since skills can transfer from setting to setting. Students can use skills analysis to name the skills they developed through all their activities; academic, paid work, volunteering, and extra-curricular. They can use skills to draw links between apparently unrelated disciplines and to relate them to occupations. The scale of excellence allows us to evaluate claims of success and to compare performance in the classroom, the office or the factory with the standard deemed necessary by the educator or the employer.

The application of the criteria of excellence answers the opening questions, "How will we know students learn the skills?" "Does this person have the necessary skills?" and "What is excellence in applying these skills?" Given the common ground of consistent skills' vocabulary, the dialogue between educators and employers need not begin on dead-end streets like "Can liberal arts students do anything?" The discussion can start with the real questions: "Must one train specifically for each job?" "What can students effectively learn through schooling?" "What needs to be done in the world?" This final question puts skills and competence in their proper light as tools for us to build our world. By using our understanding of skills to work with students, educators and employers, we can move toward a "relevance" of higher education which transcends narrow occupational interests.

BIBLIOGRAPHY

1. Bolles, R. N. The Three Boxes of Life and How To Get Out Of Them. Berkeley, CA: Ten Speed Press, 1980.

2. Bolles, R. N. What Color Is Your Parachute? A Practical Manual for Job-Hunters and Career Changers, 1980 Edition. Berkeley, CA: Ten Speed Press, 1980.

3. Breen, Paul, et.al. Teaching and Assessing Interpersonal Competence--A CAEL Handbook. Columbia, Md: Cooperative Assessment of Experiential Learning, 1977.

4. Breen, Paul, et.al. Learning and Assessing Interpersonal Competence--A CAEL Student Guide. Columbia, Md: Cooperative Assessment of Experiential Learning, 1977.

5. Brickell, Henry M. and Paul, Regina H. Minimum Competencies and Transferable Skills: What Can Be Learned From the Two Movements. Information Series No. 142. Columbus, OH: The National Center for Research in Vocational Education, the Ohio State University, 1978.

6. Brooks, Stevens E. and Althof, James E., eds. Enriching the Liberal Arts Through Experiential Learning. New Directions for Experiential Learning No. 6. San Francisco: Jossey-Bass, 1979.

7. Calhoun, Annie Belle, et.al. An Individualized Competence-Based Assessment Model. CAEL Institutional Report, Metropolitan State University. Columbia, Md: Cooperative Assessment of Experiential Learning, 1976.

8. Crystal, J. C. and Bolles, R. N. Where Do I Go From Here With My Life? Berkeley, CA: Ten Speed Press, 1974.

9. Dictionary of Occupational Titles, Fourth Edition. Washington: Employment and Training Administration. U. S. Department of Labor, 1977.

10. Drew, David E., ed. Competency, Careers and College. New Directions for Education and Work, No. 2. San Francisco: Jossey-Bass, 1978.

11. Duley, John. "Basic Skills for Experiential Learning: What Skills Do Students Need To Make the Most of Experiential Learning Opportunities," Paper #75. East Lansing, MI: Instructional Media Center, Michigan State University, 1980.

12. Duley, John and Gordon, Sheila. College-Sponsored Experiential Learning--A CAEL Handbook. Columbia, Md: Cooperative Assessment of Experiential Learning, 1977.

13. Duley, J., et. al. Expanding Your Options: Experience-Based Learning Skills Five Do-It-Yourself Kits. East Lansing, MI: Instructional Media Center, Michigan State University, 1979.

14. Ewens, Thomas. "Analyzing the Impact of Competence-Based Approaches on Liberal Education." On Competence, Gerald Grant, et.al. San Francisco: Jossey-Bass, 1979.

15. Figler, H. E. "Career Counseling for the Obscure, the Meek and the Ugly," Journal of College Placement, Fall 1978.

16. Figler, H. E. The Complete Job-Search Handbook All the Skills You Need To Get Any Job and Have A Good Time Doing It. New York: Holt, Rhinehart and Winston, 1979.

17. Figler, H. E. "Liberal, Not Vocational, Skills" Dickinson Alumnus, February 1976.

18. Figler, H. E. The Liberal View: A Career Guide for Dickinson College. Unpublished workbook of the Counseling Center, Dickinson College, Carlisle, Penn., 1978.

19. Fine, S. A. and Wiley, W. W. An Introduction to Functional Job Analysis A Scaling of Selected Tasks From the Social Welfare Field. Methods for Manpower Analysis, No. 4. Washington: The W. E. Upjohn Institute for Employment, 1971.

20. Fine, S. A. "Nature of Skill: Implications for Education and Training." Proceedings, 75th Annual Convention, APA. Washington: The W. E. Upjohn Institute for Employment Research, 1967.

21. Grant, Gerald, et.al. On Competence A Critical Analysis of Competence-Based Reforms in Higher Education. San Francisco: Jossey-Bass, 1979.

22. Haldane, B. Career Satisfaction and Success A Guide to Job Freedom. New York: AMACOM, 1974.

23. Klemp, G. O. "Identifying, Measuring, and Integrating Competence," Defining and Measuring Competence, P. S. Pottinger and J. Goldsmith, eds. New Directions for Experiential Learning, No. 3. San Francisco: Jossey-Bass, 1979.

24. Klemp, G. O. "Three Factors of Success" in Relating Work and Education Current Issues in Higher Education, Kyckman W. Vermiye, ed. San Francisco: Jossey-Bass, 1977.

25. Knierim, K. "Skill Identification Worksheet," Unpublished worksheets of the Office of Career Planning and Placement, University of Virginia, Charlottesville, Va., 1978.

26. Kolb, D. and Fry, R. "Experiential Learning Theory and Learning Experiences in Liberal Arts Education," in S. Brooks and J. Althof, eds., Enriching the Liberal Arts Through Experiential Learning. New Directions for Experiential Learning, No. 6. San Francisco: Jossey-Bass, 1979.

27. Miguel, R. J. Developing Skills for Occupational Transferability. Columbus, OH: The Center for Vocational Education, The Ohio State University, 1977.

28. Munce, J. "Taking Charge of Experience Through Life/Work Planning," Combining Career Development and Experiential Learning, F. van Aalst, ed. San Francisco: Jossey-Bass, 1979.

29. Munce, J., van Aalst, F. and Cox, B. Compass: Career Planning Workingbook. Unpublished workbook of the Office of Career Development, College of Charleston, Charleston, S. C., 1979.

BEST COPY AVAILABLE

30. Olson, P. A. and Freeman, L. "Defining Competence in Teacher Licensing Usage," Defining and Measuring Competence, P. Pottinger and J. Goldsmith, eds. New Directions for Experiential Learning, No. 3. San Francisco: Jossey-Bass, 1979.

31. Pottinger, P. S. and Goldsmith, J., eds. Defining and Measuring Competence. New Directions for Experiential Learning, No. 3. San Francisco: Jossey-Bass, 1979.

32. Pottinger, P. "Competence Assessment: Comments on Current Practices," Defining and Measuring Competence, Pottinger and Goldsmith, eds. San Francisco: Jossey-Bass, 1979.

33. Pottinger, P. S. and Klemp, G. O. "Concepts and Issues Related to the Identification, Measurement, and Validation of Competence." Institute for Competence Assessment. Boston: McBer and Company.

34. Riesman, D. "Encountering Difficulties in Trying to Raise Academic Standards: Florida State University." On Competence, G. Grant, et. al. San Francisco: Jossey-Bass, 1979.

35. Sharon, A. Assessing Occupational Competencies--A CAEL Handbook. Columbia, Md: Cooperative Assessment of Experiential Learning, 1977.

36. Spady, W. G. "The Competency Crisis and the High School Diploma." Competency, Careers and College, D. E. Drew, ed. New Directions for Education and Work, No. 2. San Francisco: Jossey-Bass, 1978.

37. Trivett, D. A. Competency Programs in Higher Education. ERIC/Higher Education Research Report, No. 7. Washington: American Association for Higher Education, 1975.

38. van Aalst, F. D. "Career, Experiential, Liberal: Three Educations or One?" Synergist, Fall 1977. Washington: ACTION, The National Student Volunteer Program.

39. van Aalst, F. D. Combining Career Development and Experiential Learning. San Francisco: Jossey-Bass, 1979.

40. Winter, D. G. "Defining and Measuring the Competencies of a Liberal Arts Education." Presented at the 25th National Conference on Higher Education sponsored by the American Association for Higher Education, Washington, D.C., April 17, 1979.

41. Wood, K., Munce, J.; and Deaton, M. Centering-Venturing Creatively Muddling Through Life and Work. Unpublished workbook of the Office for Experiential Programs and Life/Work Planning, Davidson College, Davidson, N. C., 1976, 1977.

Apendix 1
SELF-RATING FOR EXPERIENCE LEARNING SKILLS

		SKILL	RATING OF EFFECTIVENESS					EXAMPLE OF WHEN YOU DISPLAYED THE SKILL (an example may be used more than once)
			Have Difficulty		Needs Practice		Perform Easily	
Adaptive		Initiative	1	2	3	4	5	
		Cooperative	1	2	3	4	5	
		Responsible	1	2	3	4	5	
		Punctual	1	2	3	4	5	
	(RI)	Question	1	2	3	4	5	
		Observe	1	2	3	4	5	
		See Relationships	1	2	3	4	5	
	(IM)	Find Patterns	1	2	3	4	5	
		Record	1	2	3	4	5	
Functional	(IM)	Attention to detail	1	2	3	4	5	
		Separate important &unimportant	1	2	3	4	5	
	(CP)	Report	1	2	3	4	5	
		Listen	1	2	3	4	5	
Functional	(HS)	Accept others	1	2	3	4	5	
		Establish Relationships	1	2	3	4	5	
	(OM)	Decide	1	2	3	4	5	
		Select courses of action	1	2	3	4	5	
	(DP)	Imagine alternatives	1	2	3	4	5	
		Set goals	1	2	3	4	5	

Appendix 2

SKILL DEVELOPMENT GOAL PLANNER

WORK OBJECTIVES

Task description:

Skills required for tasks:

FUNCTIONAL ADAPTIVE TASK SPECIFIC

LEARNING OBJECTIVES

Learning opportunities description:

Skills required for meeting learning objectives:

FUNCTIONAL ADAPTIVE TASK SPECIFIC

Appendix 3 A Five Step Skill Identification Process

1. SUCCESS EXPERIENCES

List some of the times in your life when you felt successful, when you learned a great deal, felt you had done something, when you achieved a goal.

Be sure to cover all the areas of your life--working, learning, and playing. Learning means anywhere or anytime you learned. Working means anytime you accomplished a task, whether paid or unpaid, part-time or full-time. Playing means everything else. They need not be things you did alone or for which you won an award. They may be like these:

--found my way home from downtown at age 5
--learned to surf
--first one on my block to ride with no hands
--second prize in art contest
--rebuilt my bike
--organized neighborhood glass-recycling project
--cooked meal for whole church group
--bought my own car
--my first job
--treasurer of church group
--wrote 'A' paper in school
--best sales record in my department

LEARN WORK PLAY

Choose the 4 most important experiences. They must be ones in which you were active. Your top experiences are ones which you enjoyed, which you did well, and in which you took pride. Rank them.

Make the list as long as you can before you choose. Try for 25 or more. Ask some friends to help you remember. Thinking about your life in five-year segments, or by places you lived, or schools, or clubs, or jobs, etc. may help you identify more. Break down broad experiences, like 'moving to Charleston,' into specific instances, like 'finding an apartment,' or 'moving by U-Haul." Look for the key events in which you did something.

TELLING WHAT HAPPENED

Jot some notes on each of your top experiences. They needn't be complete descriptions or even complete sentences, simply notes to help you remember what happened in the experience. Some things to consider: What did you do? What resulted? How did you feel? Why is it important? What obstacles did you overcome? What rewards did you receive? Who else was involved?

2. LISTENING FOR ADAPTIVE SKILLS

As you listen to someone describe a peak experience, jot notes on what traits and skills were needed. What does it take to do what was done? The following list is offered as an aid. Add to it as much as you like. Tell the person what you found. Say, 'I see you as .....' or 'You were .....' Be sure to note which ones the other people say you have.

Most Important to me	People Say I have				Other Triomembers				
				adept					
				analytical					
				accurate with details					
				calm					
				caring					
				competitive					
				concerned					
				consistent					
				cooperative					
				courageous					
				creative					
				decisive					
				discreet					
				empathetic					
				enthusiastic					
				foresighted					
				honest					
				imaginative					
				initiative					
				innovative					
				insightful					
				leadership					
				listener					
				logical					
				mature					
				motivated					
				open-minded					
				organized					
				overcoming obstacles					
				perceptive					
				persistent					
				punctual					
				reflective					
				responsible					
				resourceful					
				risk-taker					
				humorous					
				sensitive					
				tactful					
				versatile					

3. FACTORING FUNCTIONAL SKILLS

In the space at the head of each column, write a brief title for each experience you described. Read down the list of skills. If you used the skill in a particular experience, color the corresponding box, as in the example. If you didn't use the skill in that experience, leave the box blank. Repeat until you've colored all boxes for all skills used in all experiences. Add unlisted skills in the spaces marked with an asterix (*).

SKILLS	1	2	3	4	5	6	7	Ex (club fund raising)
1. question								
2. observe								
3. read								
4. experiment								
5. analyze								
6. dissect								
7. synthesize								
8. develop hypotheses								
9. use insight								
10. see relationships								
11. diagnose								
12. measure								
13. locate necessary resources								■
14. find patterns								
15. compare								■
16. reflect								■
*								
17. organize								■
18. account								■
19. catalogue								
20. translate								

SKILLS	1	2	3	4	5	6	7	Ex
21. transcribe								■
22. classify								
23. record								■
24. attention to detail								■
25. calculate, compute								■
26. create procedures								■
27. separate important from unimportant								■
28. compile								■
29. systematize								
30. interpret								
31. summarize, simplify								■
32. memorize								■
*								
33. express								
34. negotiate, bargain								■
35. persuade								■
36. teach								
37. report, convey information								■
38. listen								■
39. interview								
40. write								
41. talk								
42. create visual images								
43. represent others								
44. express ideas non-verbally								
45. use symbols, like mathematics								■
46. edit, revise								
47. describe feelings								
48. perform								
*								
49. empathize								

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